










# Carbon Steel Tight Head 1-Gallon Drum Specification

Press  to see Check List only.

Description	Package ID Number	Packaging Filling Instructions *
Drum, Carbon steel, tight head, 1 gallon, 6 3/4 in. ID, UN 1A1/X 1.5/250 , 0.6071 mm Nominal (24 gauge)	112-6110	CHK-33

Mfg. Details Per: DOE Packaging Specifications  
No. 1A1-106-00  
Issue Date: February 1, 2000  
Revised Date:

	1.0 GENERAL DESCRIPTION
	2.0 MATERIAL DETAILS
	3.0 CONTAINER PERFORMANCE CRITERIA
	4.0 QUALITY ASSURANCE
	5.0 MARKING
	6.0 INTENDED USE
	7.0 SUGGESTED MANUFACTURERS
	8.0 AUTHORIZED CHANGES
	9.0 DISTRIBUTION OF UN PERFORMANCE TEST REPORTS (per ¶ 3.1)

\* For future use.

## Packaging Specifications

### Tight Head Carbon Steel Drum

Specification No. 1A1-106-00

Issued: February 1, 2000

Revised:

Page 1 of 7

## 1.0 GENERAL DESCRIPTION

Tight Head (TH) Carbon Steel 1 and 5 gallon drum with welded seams, straight sided, 24 gauge steel body, steel head with standard 2-inch bung fittings, with metal handle attached to top head, inside with phenolic lining.

### 1.1 United Nations Designation - UN 1A1 /X sg/ tp/ \* [per 49 CFR, ¶ 178.503]

**1A1** Tight head steel drum.

**X** Suitable for Packing Group I, II, and III materials. [*one gallon drum*]

**Y** Suitable for Packaging Group II, and III materials. [*five gallon drum*]

**sg** Maximum specific gravity for which drum design type was tested .

**tp** Hydrostatic test pressure (in kilopascals) for which drum design type was tested.  
[ *250 kPa equivalent to 36.3 pounds per square in (psi) pressure - for PG I test.*]  
[ *100 kPa equivalent to 15 pounds per square in (psi) pressure - for PG II test.*]

**\*** The last 2 digits of the calendar year in which the container was manufactured.

Specific UN Markings are specified in the Purchase Order Description for the referenced package ID number for each specific drum, which are the Company 'minimum' UN requirements.

### 1.2 Size:

1 gallon	Inside Diameter – 6-3/4-inches	Outside Height - 8-1/2 inches
5 gallon	Inside Diameter – 11-3/4 inches	Outside Height - 13-1/4 inches

### 1.3 Tare Weight:

1 gallon = 1.7 lbs.;      5 gallon = 4.7 lbs.

## 2.0 MATERIAL DETAILS

Drum construction must comply with Title 49, Code of Federal Regulations (49 CFR), ¶178.504 (latest edition) for steel drums, and the following minimum requirements. Manufacturer shall document appropriate quality control on incoming raw material. No significant changes to the manufacturing process or raw material is allowed without prior approval of the Company. Steel thickness dimensions/tolerances to be in conformance with TABLE, per [Appendix B](#).

### 2.1 Drum Body:

Cold rolled steel, 0.6071 mm Nominal, 0.5309 mm Minimum, (24 gauge)

## Tight Head Carbon Steel Drum

Specification No. 1A1-106-00

Issued: February 1, 2000

Revised:

Page 2 of 7

**2.5 Chimes:**  
Mechanically seamed.

**2.6 Gasket:**  
N/A

**2.7 Rolling Hoops:**  
None (nor top bead).

**2.8 Handle:**  
Steel rod, D-Style handle, attached to drum head with brazed plate.

**2.9 Bung Closure:**  
2-inch and 3/4-inch standard bung fitting (Rieke or Tri-sure), with gasket; the 3/4-inch bung is preferred, but optional, subsequent to availability.

**Manufacturer/supplier** must furnish Company, in writing, closure requirements, as performed for the UN design test; per 49 CFR, §178.2(c)(1). It must be identified on the closure instructions specifically as to the Company drum to which the instructions apply. Ref: §9.0 for distribution.

**2.10 Surface Preparation:**  
Surfaces shall be prepared to retard rust formation, or be sufficiently cleaned for application of interior and exterior coatings.

**2.11 Interior finish:**  
Phenolic lining.

**2.12 Exterior finish:**  
Drum Body and Head painted SSCI (Steel Shipping Container Institute) all grey or all black.

**2.13 Seaming Compound:**  
Chimes must be sealed with a seaming compound, and applied in conformance to standard manufacturing quality procedures, to ensure no leakage/seepage.

**2.14 Cleanliness:**  
Finished drums must be free of rust, dirt, oil, solvents, metal shavings, foreign contaminants, and interior moisture.

### 3.0 CONTAINER PERFORMANCE CRITERIA

Manufacturer shall successfully test and certify that containers meet or exceed the requirements of 49 CFR, §178.600 - 178.608, for the Packing Group I level.

**3.1 Performance Test Documentation:**  
Upon request, the manufacturer must be capable of providing copies of the performance test documentation for purchased packagings, as required by 49 CFR, §178.601(1) for the UN certification marked packaging. Periodic audit copies will be requested randomly on purchased UN packagings. Ref: §9.0.

## Tight Head Carbon Steel Drum

Specification No. 1A1-106-00

Issued: February 1, 2000

Revised:

Page 3 of 7

### 3.2 Performance Tests:

The specified drums require the **US Department of Transportation** UN performance criteria for design qualification testing, periodic retesting, and production tests established in 49 CFR, ¶178.600 - 178.608.

*NOTE TO SELLER: The UN test/marketing certifications must be made by the drum manufacturer or a Department of Transportation approved third party tester.*

## 4.0 QUALITY ASSURANCE

The Seller shall assure, and be responsible, that the quality of the drums furnished under this document are of good quality, as pursuant to industry standard manufacturing practices for steel drums, including the materials/components used in the manufacturing of the stated steel drums.

The Seller shall meet the requirements stipulated in this document, and the specific requirements of the Purchase Order Description for the specific drum as specified in the purchase order.

### 4.1 Manufacturer's Certification:

By the act of placing the UN performance criteria markings on each drum purchased, the manufacturer acknowledges he has certified, and accepted responsibility, that the stated drum design meets or exceeds the U.S. Department of Transportation's UN performance requirements as stipulated in ¶3.2 of this document and in accordance with markings prescribed in 49 CFR, ¶178.503.

In addition, this certification marking acknowledges that the drum manufacturer has complied with the specific standards for steel drums specifically noted in 49 CFR, ¶178.504.

### 4.2 Receiver Inspections:

The following inspections will be performed on the incoming drums by a Company designee to determine the drums meet quality standards and the requirements of this document. However, the Company is not limited to the following inspections to determine quality and specification conformance. Conformance will be indicated by a Y or N in the "Y/N" column, and negative responses documented and processed through the Company's Quality Assurance Program.

*NOTE: Checklist for this specification is on the following page.*

## Tight Head Carbon Steel Drum

Specification No. 1A1-106-00

Issued: February 1, 2000

Revised:

Page 4 of 7

*This checklist is to be reproduced for QC Inspections*

### Receiver Inspection Quality Control (QC) Check-list for Incoming Steel Drums:

QC Conformance		Y/N	<< "No's" to be documented in accordance with the Company's QA Program
1	Capacity (¶1.0)		Drum is the capacity specified in the Purchase Order Description.
2	Drum Surface (¶2.10, 2.14)		Clean, no significant scratching, dings, or dents in drum, no significant corrosion on exterior or interior surface of drum.
3	Bung Closures (¶2.9)		Drum top contains a 2-inch bung closure opening. Closures contain gasket rings.
			Bung openings/closures are painted silver, or plated to prevent rust.
4	Drum heads (¶2.12)		Drum heads are painted same color as drum body.
5	Drum exterior (¶2.12)		Painted all GREY or all BLACK (SSCI standard)
6	Markings (¶5.0)		Drums marked (as a minimum) with Company specified UN markings, per Purchase Order Description.
			The complete UN required markings are durably marked on either the bottom or the side of drum, per 49 CFR, ¶178.503.
			Markings include the manufacturer's identification -- company name or registered symbol (initials or M-number), or test agency code; after USA/. Ref: 49 CFR, ¶178.503(a)(8).
7	Side Markings (¶5.0)		The UN markings are durably and legibly marked on side.

Package ID number \_\_\_\_\_

P.O. Number \_\_\_\_\_

Total Units Received \_\_\_\_\_

Inspection Method: Per Company's QA Program

Sample Size \_\_\_\_\_ [Based on ANSI/ASQC Z1.4-1993]

Non-Conformance Document No. \_\_\_\_\_

Inspector/Date \_\_\_\_\_

Additional comments provided on back: \_\_\_\_ check if yes.

The above QC inspection check list shall be accomplished for each order based on random samples of incoming carbon steel drums, by QC personnel to determine manufacturer's conformance to these specified Packaging Specifications.

Shipments of carbon steel drums not meeting specified requirements will be returned to the seller for credit.

QC inspections resulting in non-compliance with the Packaging Specifications will be cause for rejection of the entire shipment.

## Tight Head Carbon Steel Drum

Specification No. 1A1-106-00

Issued: February 1, 2000

Revised:

Page 5 of 7

### 5.0 MARKING

As a minimum, each drum shall be marked in accordance with 49 CFR, ¶178.2, 178.3 and 178.503 in a conspicuous location on exterior surface of the drum. Markings shall have a minimum letter height of 1/2-inch. Markings must include the manufacturer's identification -- company name or registered symbol (initials or M-number), or test agency code, per 49 CFR, ¶178.503(a)(8).

Additionally, drums are to be marked on the side with the UN markings as stipulated in ¶1.1 of this specification, and specifically stated in the Purchase Order Description.

The letters: CATN—(dash) plus the last four (4) numbers of the package ID number must be marked below the UN markings:

1 gallon	=	CATN--6110
5 gallon	=	CATN--6115

### 6.0 INTENDED USE

The one (1) gallon containers are intended for Packing Group I, II, and III, and five (5) gallon containers for Packaging Group II and III hazardous materials in liquid form. Maximum fill capacity of the drum shall not exceed the tested hydrostatic pressure or density marked on the drum.

### 7.0 SUGGESTED MANUFACTURERS

The following list of suggested manufacturers have demonstrated ability to comply to the requirements set forth in this document. However this list does not guarantee current or continued availability as a suggested manufacturer source:

[Enter Suggested Manufacturers Here](#)

The Seller must advise the Company prior to any change in the current source (manufacturer) of packaging materials described in this Packaging Specification.

Any Manufacturer that satisfactorily demonstrates to the Company the capability to furnish packaging in compliance with this Packaging Specification, may be added to the above listing.

### 8.0 AUTHORIZED CHANGES

Changes/revisions in the requirements specified in this document will only be authorized by the Company.

## Tight Head Carbon Steel Drum

Specification No. 1A1-106-00

Issued: February 1, 2000

Revised:

Page 6 of 7

### 9.0 DISTRIBUTION OF UN PERFORMANCE TEST REPORTS (per ¶3.1) and CLOSURE INSTRUCTIONS (per ¶2.9)

A) Closure instructions must be furnished for each initial order, and annually (at the minimum) for each type/size package purchased by the Company to the address below.

B) Upon specific request, UN performance test documentation for each specified order/shipment will be submitted directly to the Company at the address below.

**COMPANY NAME AND ADDRESS** (enter information below)

<b>Steel Gauge Tolerances for Steel Drum QC Evaluation</b>	<b><u>APPENDIX B</u></b>	<b>Issued/Revised: February 1, 2000</b>
--	--------------------------	---

### **STANDARD FOR QC INSPECTIONS OF GAUGE THICKNESS FOR PURCHASED STEEL DRUMS**

The below table of metal gauge thickness dimensions, and tolerances is to be used when evaluating steel drums for compliance to the specified steel thickness (gauge) set forth in the Company Packaging Specifications for the purchase of steel drums the Company.

This table is furnished, in that, the US DOT Hazardous Material Regulations (49 CFR) under the new UN Performance Packaging concept no longer specifies gauge thickness and tolerances for steel drums - only test criteria.

It should be noted, that in the Company UN Hazardous Material Packaging Specifications, specific steel thickness (gauges) are specified for the UN steel drums to be purchased, as well as the required UN performance criteria. In addition, the past DOT gauge table is incorporated directly into the DOE "White Book" for the DOT 7A, Type A packaging.

<b>GAUGE NUMBER</b>	<b>NOMINAL THICKNESS (Inches)</b>	<b>NOMINAL THICKNESS (Millimeters)</b>	<b>MINIMUM THICKNESS (Inches)</b>	<b>MINIMUM THICKNESS (Millimeters)</b>
12	0.1046	2.6568	0.0946	2.4028
14	0.0747	1.8974	0.0677	1.7196
16	0.0598	1.5189	0.0533	1.3538
18	0.0478	1.2141	0.0428	1.0871
19	0.0418	1.0617	0.0378	0.9601
20	0.0359	0.9119	0.0324	0.8230
22	0.0299	0.7595	0.0269	0.6833
24	0.0239	0.6071	0.0209	0.5309
26	0.0179	0.4547	0.0159	0.4039
28	0.0149	0.3785	0.0129	0.3277

#### **NOTES:**

The above table of gauge values (in inches) were extracted from the past DOT specifications; 49 CFR, ¶173.24(a)(2) (pre-HM 181) for steel sheets; for the gauges as specified for DOT 17C, 17E, 17H, 37A, etc. steel drums.

Conversion to millimeters is: inches multiplied by 25.4000 mm/in = millimeters. [current 49 CFR, ¶171.10 (c)(2)]

Minimum Thickness for Reuse (reconditioning) is 1.1 millimeters (therefore, above 19 gauge steel).